School and Home Garden Section

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Automobiles Churches Classified Ads

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LATEST NEWS OF THE AUTOMOBILE TRADE AND INDUSTRY

ELECTRICAL SPECIALISTS TELL HOW TO LOCATE COMMON STARTING AND LIGHTING TROUBLES

(By Special Permission from Motor Age.)

At least 90 per cent of the difficulties encountered in the operation of modern starting and lighting systems are due to one or more of the following causes:

(a) Battery partly or entirely discharged.
(b) Open circuits due to broken connections, etc.
(c) Bad contacts.
(d) Short circuits.
(e) Grounded circuits.
(f) Improper equipment.

For convenience the various causes of trouble may be classified as belonging to one or the other of two groups, and these may be called lighting troubles and starting troubles.

No Lights, Engine Not Running

This condition is usually due to a discharged battery or an open circuit. The battery may be tested by operating the starting motor, but if the motor fails to operate do not assume that the battery must be discharged, as there may be an open in the starting circuit as well as in the lighting circuit. Open the battery compartment and examine the connections to the battery to make sure they are all clean and tight. If no loose connections are found at the battery, test it by means of a test lamp or voltmeter, if either is available, or by a hydrometer.

In the absence of a test lamp and voltmeter the approximate condition of charge of the battery may be tested by momentarily short circuiting it with a short piece of wire or other conductor. If it is completely discharged, practically no spark or arc will form when the short circuit is broken. This method of testing is advised only in an emergency. Should the battery be found discharged it may be due to any one or a combination of the following causes, and the trouble should be located and corrected:

(a) Short circuits in the wiring, lamps, switches and other equipment.
(b) Battery worn out, internal short circuit, low electrolyte, excessive lamp load, improper use of starting motor, partial short circuit caused by acid and moisture on top of battery, etc.
(c) Cut-out not operating properly and as a result the battery discharges through the generator.

No Lights, Engine Running

If the condition of the batxery is found to be correct, then the trouble is doubtless due to an open circuit. An inspection of the circuit may locate the trouble, which may be due to a terminal coming loose, a terminal block or switch open, blown fuse, loose wires in lamp sockets, burned out lamps, broken wire, lamps loose in sockets, defective switch, &c. If the open circuit is not readily located by an inspection of the circuit it may be found by testing, as explained in one of the following sections.

If no lights burn when the engine is running the cause of the trouble may be any one of a combination of the following:

(a) Circuits connected to the battery short circuited, which also short circuits the generator.
(b) Open circuit between battery and lights, as explained above, or an open circuit between the generator and battery.
(c) No voltage generated by the generator, which may be due to dirty or roughened commutator, brushes stuck in holders and not in contact with the commutator, brushes not fitted to surface of commutator, or pressure on brushes so as to hold them on the commutator, winding burned out or grounded, short circuited or grounded field coils, &c.
(d) The cut-out and regulator may not be operating due to improper adjustment, burned out winding, broken connections, dirty contacts, worn out contacts, &c.

One or More Lights Out, Other Bright

If one or more of the lamps do not light when turned on, but others do light, the trouble is due probably to:

(a) Fuse blown.
(b) Bulb burned out.
(c) Bulb loose in socket.
(d) Open or ground in wire to lamp from switch.
(e) Switch does not close.

First try the bulb by making sure it is firm in its socket and then inserting it in a socket to replace a lamp that is burning. If it does not light, the bulb must be renewed; if it does light the trouble is between the switch and the socket. Then look to the fuse. If it is correct, the trouble is between fuse block and socket and can be located by inspection for grounds or open circuits or tested, as explained later.

Dim and Flickering Lights

If all the lights are dim when the engine is not running, the cause is a partly discharged battery.

If all the lights are dim when the engine is running, the cause is a partly discharged battery, or the cut-out, regulator or generator are not operating correctly.

When one or more, but not all lamps flicker the cause of the trouble may be due to loose connection in the lamp circuit, broken filament or the cut-out may not be operating properly.

When some lights are dim and others of supposedly the same candle power are light the cause of the trouble may be a poor bulb or one of improper voltage, blackened or worn out bulb, partial short circuit on some part of the lighting circuit.

Starting Motor Does Not Crank Engine

If the starting motor refuses to operate when the starting switch is closed the trouble is likely due to one of the following causes:

(a) Discharged battery, which may be determined as explained above.

(b) Open circuits due to loose connections at battery, starting switch, motor terminals or ground connection; very poor contact in starting switch; dirty or roughened commutator; worn brushes; brushes not fitted to the surface of the commutator; improper pressure on the brushes; armature or field winding burnt out.

(c) Short circuits or grounds in starting switch, wiring or motor, due to insulaton being worn off of the conductors by metal cleats, sharp bends, around the metal covers, insulation destroyed by heat, water and grease, &c.

Starting Motor Cranks Engine Slowly

When the starting motor cranks the engine below the proper speed it may be due to any one of the following causes:

(a) Battery partly discharged or very cold, thus lowering its efficiency.

(b) Poor contacts in motor circuit, usually at battery terminals, starting switch contacts, or the commutator of the motor; in fact and condition which will not result in an abnormal amount of resistance being introduced into the circuit.

Simple Testing Equipment

A 6-volt lamp in a small socket and provided with testing points connected to it by means of lamp cord may be used in locating practically all kinds of trouble on a starting and lighting system when the operator is familiar with the wiring diagram of the system or has at his disposal a diagram which he can readily follow. For repair shop use the best points may be made similar to the ones shown in Fig. 1 For emergency use any two lengths of wire with bared ends usually will serve.

How to Locate an Open Circuit

The use of the test points in locating an open circuit may be shown by taking the circuit shown in Fig. 2 Assuming you are going to use the battery in the car in making the tests you may proceed as follows:

Connect one test point to the positive terminal of the battery and the other point to the negative terminal. With these connections made the test lamp should light up to its full candle power unless the battery is in a discharged condition Assuming the battery is found to be properly charged, move the test point from the negative terminal of the battery to the terminal of the switch where the wire D is connected and if the lamp lights the wire D is O. K. Next move the test point P2 to the terminal of the switch where the wire C is connected, and if the lamp lights with the switch closed the switch is O. K.

Next move the test point P2 to the right hand terminal of lamp L2, and if the test lamp burns the wire C is O. K. Next move the test point P2 to the left hand terminal of the lamp L2. When this last connection is made the test lamp and lamp L2 will be connected in series across the terminals of the battery. If lamp L2 is O. K. the filament of the test lamp will brighten up, but not to the same extent it did when connected to the right hand terminal of the lamp. Next move the test point P2 to the right hand terminal of lamp L1, and if the test lamp glows the same as when the test point P2 was connect to the left hand terminal of lamp L2 then wire B is O. K. Lamp L1 may be tested by moving the test point P2 to the lift hand terminal of the lamp, which puts the lamps L1 and L2 both in series with the test lamp, and the test lamp may not light at all, due to the added resestance in series with it.

Lamp L1 and wire A may be tested by placing the test point P2 on the negative terminal of the battery, and the test point P1 on the lift hand terminal of the lamp L1, and if the test lamps lights wire A is O. K. Then move the test point P1 to the right hand side of the lamp L1, which places the test lamp and the lamp L1 in series, and if the lamp L1 is O. K. the test lamp will light; but not at full voltage, due to the resistance of lamp L1 in series with it. Should the test lamp fail to light under any of the above conditions, it is an indication that there is an open circuit between the last point where the test lamp would light and the first point along the circuit where it failed to light.

Testing for Short Circuit

Short circuits between two wires which are normally insulated from each other may be tested for with the test lamp and battery shown in Fig. 1 by placing one test point in contact with one of the wires and the other test point in contact with the other wire. If the test lamp lights it is an indication that the two wires being tested are electrically connected or shorted. In making these tests be sure that the wire or circuits being tested are not normally connected. The may be determined by a thorough inspection of wiring diagram.

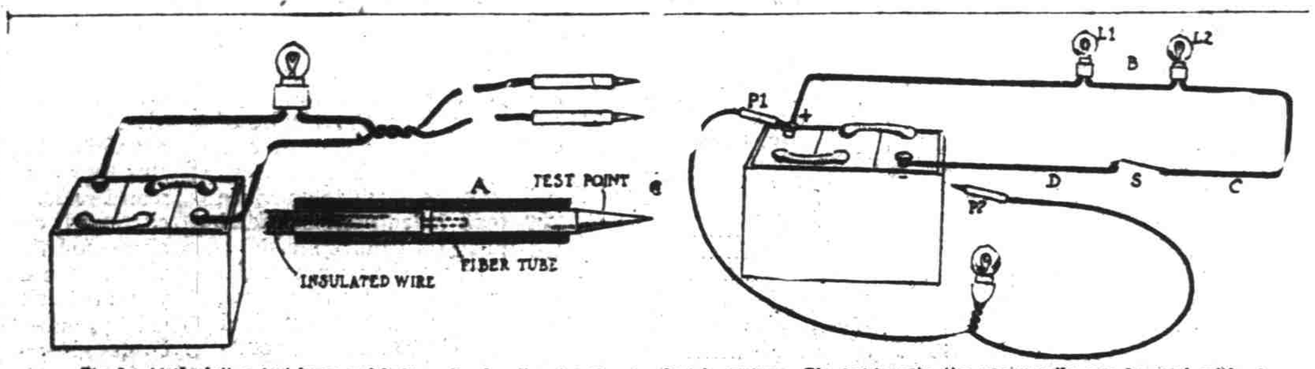


Fig. 1—At the left, a test lamp and battery for locating troubles in electric system. The battery in the car usually can be used without removing it from the car. The detail shows a special test point that can be made for repair shop use where frequent testing is necessary. For the motorist, a length of lamp cord usually will serve. Fig. 2—At the right, using a test lamp for locating troubles in a series lighting circuit

THEY SELL TRUCK DESPITE BATTLES

"As an example of how over one-half the world can be at war and still not interfere with Uncle Sam's exportation of motor trucks," says C. E. Giltner of the Kissel Kar, "is shown by an allotment of 43 Kissel trucks now being shipped to the Dutch East Indies via San Francisco, Honolulu, Philippines and China, arriving at destination some time in September.

"Most of these trucks are to be used as demonstrators by our Amsterdam dealers to prove to plantation owners and shippers the efficiency of American motor trucks over the slow and crude native methods in transporting teas in the mountainous districts.

"Owing to the extreme tropical climate, where the thermometer never goes below 70 degrees, extra large radiators were installed giving greater radiation surface for water cooling purposes.

"An interesting sidelight on the care with which the trucks have to be packed and stored on board the Asiatic liner is that every visible part of the trucks are covered with a coat of white lead tallow instead of grease to prevent the rats from gnawing through the frames and chassis."

Subject to ratification, the German-Swiss agreement of September 2, 1916, which expired on April 30, has been extended to July 31. By this agreement Germany sends coal and iron to Switzerland.

THERE IS A NEW DICTIONARY FOR AUTOMOBILE TERMS ISSUED NOW

Precision may rule henceforth in automobile language, with the completion of a standard automobile nomenclature by the Society of Automobile Engineers after six months of work. Just as the French academy, a good many years ago, straightened out the French language, the Society of Automobile Engineers has straightened out the automobile language, so that an automobile term will have the same meaning in New York as it does in Detroit or in San Francisco, or in London or Paris, in fact, over the world.

To carry the names of car parts and the other items of automobile terminology requires a booket of 23 pages, which shows the growth and extent of the automobile language. Sixteen years ago it was in its infancy and naturally with such rapid accretion a good deal of ambiguity and confusion in terms developed. The clearing up of these uncertainties is regarded as a notable service not only to the automobile industry but to the millions of automobile owners. In ordering parts there need be no more mistakes or writing back and forth as to what is meant.

Probably the most interesting of the distinctions established by the nomenclature committee is that in regard to types of bodies. In this class there has been much looseness of usage even among the manufacturers. "Broughham," for instance, which has a suggestiveness of luxury, has been stretched to fit unlike models of cars. Not only motorists but the pedestrian public is interested in the different type of cars. A pedestrian in recounting some thrilling experience in dodging a car in the street can tell his story with much more realism if he knows the kind of car with which he had the encounter, and if he is hit by a car he is surely entitled to know whether it was a lordly "limousine" or a lowly "runabout." It is not a long list to learn. There are 16 types of bodies, according to the ruling of the nomenclature committee. These are:

Roadster—An open car seating two or three. It may have additional seats on running-boards or in rear deck.

Coupelet—Seats two or three. It has a folding top and full height doors with disappearing panels of glass.

Coupe—An inside operated, enclosed car seating two or three. A fourth seat facing backward is sometimes added.

Convertible coupe—A roadster provided with a detachable coupe top.

Clover leaf—An open car seating three or four. The rear seat is close to the divided front seat and entrance is only through doors in front of the front seat.

Touring car—An open car seating four or more with direct entrance to the tonneau.

Salon touring car—A touring car with passage between front seats, with or without separate entrance to front seats.

Convertible touring car—A touring car with folding top and disappearing or removable glass sides.

Sedan—A closed car seating four or more all in one compartment.

Convertible sedan—A salon touring car provided with a detachable sedan top.

Open sedan—A sedan so constructed that the sides can be removed or stowed so as to leave the space entirely clear from the glass front to the back.

Limousine—A closed car seating three to five inside, with driver's seat outside, covered with a roof.

Open limousine—A touring car with permanent standing top and disappearing or removable glass sides.

Berline—A limousine having the driver's seat entirely inclosed.

Brougham—A limousine with no roof over the driver's seat.

Laudalet—A closed car with folding top, seats for three or more inside, and driver's seat outside.

In the automobile language the axle has developed a rich nomenclature of its own. The general types of axles set forth in the booklet are: Dead axle, live axle, plain live axle, semi-floating axle, three-quarter floating axle, and full floating axle. Words for the different types of bevel gear, worm, double-reduction gear, or single chain. In other construction the rear wheels are driven by double chains, internal gears or jointed cross-shaft.

To the man in the street the term "floating axle" sounds like a contradiction in terms. How can a floating axle hold anything? is asked. The answer is that the floating axle does not hold up anything; it serves to transmit rotation to the wheels. A strong outer casing around the driving axle, in reality a second axle, carries the weight of the car.

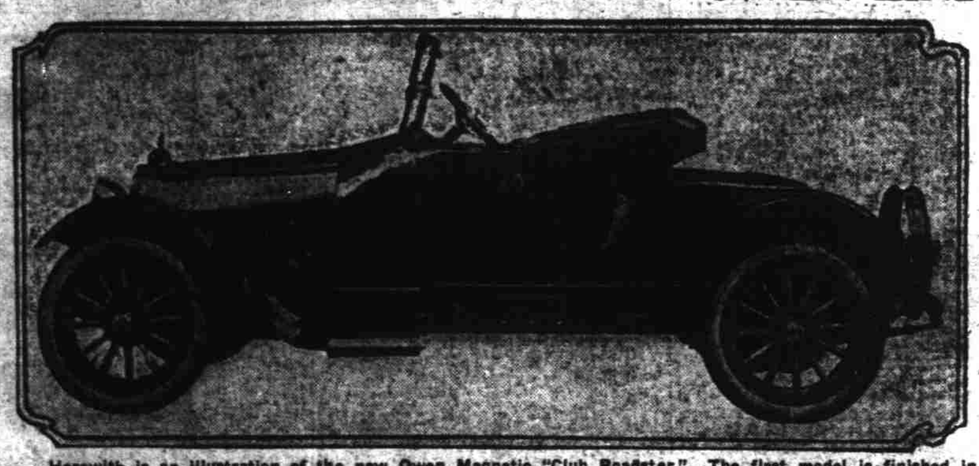
The booklet is naturally highly technical, but several overworked words which the common ear often hears are relieved from double or triple duty. One is the word "motor." It has been much used both to refer to the automobile itself and to the engine which operates the car. The nomenclature committee recommends that "engine" be used for the mechanism which provides the motive power for the car. "Right" and "left" are right and left hands when sitting in the car. A great deal has been heard about the "emergency," especially in accounts of "hair-breadth escapes" by new owners. The word is retired, whether or not on a pension is not said, by the nomenclature committee. "The recommendation is: The terms 'service brake' and emergency brake' should not be used. Better designations are 'foot brake' and 'hand brake' or, if both brakes are foot operated, 'right foot brake' and 'left foot brake.'"

The work of the nomenclature committee is comprehensive, but what is it anyway, that the committeemen are talking about?

Is it an "automobile" or a "car," or a "motor," or a "motor car"?

The report of the committee is headed "S. A. E. Automatic Nomenclature," but in the reading matter under heading "car" is used again and again in place of automobile.

"CLUB ROADSTER" NOW IN OWEN LINE



Herewith is an illustration of the new Owen Magnetic "Club Roadster." The first model is finished in Holland blue, with brown Spanish leather upholstery and natural wood wheels. The body is of the convertible type and seats either two or four passengers. When not in use the rear compartment folds out of sight under the rear deck and its operation is very simple, as there are no complicated levers to get out of order. There is plenty of room for golf clubs and luggage in the rear compartment.

BRUSHING BENEFITS MOTOR CAR TOPS

The service and beauty of many a motor car top, states the last technical bulletin of the Haynes Automobile Company, may be permanently retained with only passing attention by the owner to this part of the motor car.

The top is in greatest danger when it is folded for spring and autumn driving. Often the material is pinched by the bows or top fasteners, and the fabric stretched out of shape. This can be avoided by care in lowering the top. An occasional brushing, inside and out, will keep the top in good condition and prolong its life.

The top may be washed with soap and water to remove the accumulation of dust and grease spots. Gasoline, however, must never be employed for cleaning the rubberized cloth, since it dissolves the waterproofing preparation.

CARS AND TRUCKS IN THE U. S.

January 1st, 1917.

New York	279,406	District of Columbia	13,118
Ohio	252,179	Idaho	12,996
Illinois	251,300	Arizona	12,122
Pennsylvania	230,648	New Mexico	8,028
California	212,918	Delaware	7,520
Texas	197,687	Wyoming	7 125
Iowa	172,791	Nevada	4,602
Michigan	159,639	Total	3,541,738
Indiana	139,138		
Minnesota	137,500		
Massachusetts	136,790		
Wisconsin	117,603		
Kansas	114,364		
Missouri	107,865		
Nebraska	104,301		
New Jersey	75,108		
Washington	62,546		
Connecticut	56,048		
Oklahoma	52,718		
Georgia	45,775		
South Dakota	44,271		
Colorado	44,180		
North Dakota	41,761		
Virginia	35,426		
North Carolina	35,150		
Maryland	33,364		
Kentucky	31,500		
Tennessee	31,400		
Oregon	30,917		
Maine	28,951		
Montana	24,585		
Alabama	22,354		
Rhode Island	21,406		
Mississippi	20,474		
West Virginia	20,437		
South Carolina	x 19,000		
Louisiana	16,800		
Arkansas	14,704		
New Hampshire	14,338		
Vermont	14,251		
Florida	14,220		
Utah	13,507		

There is now one automobile or motor truck to every twenty-nine persons in the United States, while a year ago the ratio was one to forty-two, according to a compilation just completed by Donald McLeod Lay of the Automobile staff.

Breaking all records for increases in registration by a gain of over a million cars and trucks in a year, the total registration at the end of 1916, excluding all duplicate registrations, was 3,541,738, the gain for the twelve months totaling 1,070,143 or 44 per cent, as compared with the registration at the end of 1915. The gain during the entire year of 1915 was only 636,998, so that the increase last year was nearly double the highest preceding record.

Production and registration kept pace fairly well during 1916, the National Automobile Chamber of Commerce putting the total output for the year at 1,617,708 motor vehicles. The total retail price paid for these cars and trucks by American and foreign buyers is given at $1,083,023,273. Passenger car production was put at 1,528,578 valued at $921,378,000. Motor truck output totaled 92,130, representing $166,650,273. The average price for passenger cars was $605 and for commercial vehicles $1,809.

IMMENSE EXPORT MARKET AT YOUR DOOR SAYS SENOR

Mexican Capitalist Believes Country to South Will Purchase Motor Trucks

"You American motor truck manufacturers will soon have an immense export market right at your very doors," says Senor Emanual De Campo, prominent Mexican capitalist and Kissel Kar dealer in Mexico City.

"It is my opinion that within a year normal conditions will be a reality in Mexico, and then American motor trucks will be in great demand to help build up the country. The transportation facilities in Mexico at present are very badly disrupted owing to the terrific destruction of rolling stock as well as live stock, mules, etc. What automobiles and trucks there were have been commandeered by the different armies or destroyed. While the railroads are being repaired trucks will be the only means of haulage and transportation.

"The unlimited quantity of oil at Tampico is assurance that this supply will never be exhausted and will always be cheap. Right now oil is selling at 25 cents a barrel.

Senor De Campo recently purchased a building containing 30,000 square feet of floor space, originally erected as the largest dance hall in Mexico, with foyer, cafe, card and gambling rooms. Boxes extend completely around the floor. Located in the heart of Mexico City, it has been transformed into an up-to-date automobile display and salesroom with service station, garage and repair shop.

One of the present difficulties which American shippers have to contend with in shipping to Mexico City is that the United States railroads will not allow their cars over the Mexican boundary line where experience has proven they will either be commandeered or destroyed. Senor De Campo in order to get his shipments to Mexico City must unload at the boundary line and reload his own box cars which he purchased outright as native box cars are too small and have doors only on the sides instead of at the ends, which are necessary in loading trucks.

SIMPLE SUBSTANCE PREVENTS STICKING OF TIRES TO MOLD

The sticking of tires to the mold after vulcanization has always been a great source of annoyance to all repairmen. The best applications heretofore used as possible preventives have been lacking in some respects. Therefore the discovery by G. R. Carmichael, a repairman of Perth Amboy, N. J., of the use of a material which overcomes this trouble will be welcomed by vulcanizers everywhere. Since the discovery is so simple, the wonder is that no one has reported it before.

So simple a substance as cocoa butter solves the problem. The method followed is this:

Clean the mold thoroughly with fine emery paper. Then after allowing it to warm up a little, go over it with a piece of cheese cloth saturated with cocoa butter. Next wipe till glassy and apply soapstone.

This method of preparing the mold has been tried in the Goodyear repair

DENVER CONCERN PUTS NEW FLUID POLISH ON SALE

Process Restores Luster and Color to Bodies of Automobiles

An automobile refinishing fluid, a combination varnish and polish, which restores both luster and color to automobile bodies, the only thing of its kind on the American market, is a product of Colorado industry, manufactured by the Western Specialty Manufacturing Company, with offices and factory in Denver.

E. D. Robert, president of the company and inventor of the product, discovered the peculiar compound by accident while he was experimenting in a chemistry laboratory in the University of Geneva, Switzerland. He accidentally poured the contents of a fellow-student's chemical flask into a mixture of his own. Immediately the mixture assumed the appearance of an elastic, hard, glistening substance, and young Robert thought he had discovered a synthetic rubber.

The French government had offered a reward of 10,000 francs for a synthetic rubber, so young Robert experimented with his new found mixture in the hope that he would win the prize with it. An analysis, however, showed him that he did not have a synthetic rubber, but a substance combining the properties of varnish and a polish. He experimented with the substances for nine years and last year perfected a refinishing liquid for automobile bodies.

The company is producing 500 gallons of the fluid a month and expects to be producing 100 gallons a day within six months. The company also plans to manufacture other commercial chemicals and food products, among which is a concentrated coffee in solid form, which can be converted to liquid by the addition of hot water.

The refinishing fluid is a transparent liquid which is said to restore the luster and color to any automobile body surface. It is said to be unaffected by water or mud, does not collect dust, and is said to be the only fluid of its kind that dries rapidly without artificial drying processes. Its makers assert it can be applied to a car in the morning and the car can be used in the afternoon the same day.

ARMY CALLS BIDS FOR 10,000 MOTORCYCLES

That the United States government is preparing to use motorcycles in army service on a gigantic scale is indicated by the announcement that bids will be received on June 13 on from one to 10,000 motorcycles, 5000 of which are to be equipped with side cars. The purchase of these machines involves the training of men to operate them, which will become a part of the duties of the motor transport committee of the Council of National Defense. Shelby A. Falor, manager of the motorcycle department of the Goodyear Tire & Rubber Company, and president of the Federation of American Motorcyclists, has been appointed a member of this committee.